



O Doente com Trauma em UCI

Centro Hospitalar Trás-os-Montes e Alto Douro (CHTMAD), EPE

Serviço de Cuidados Intensivos e Cuidados Intermédios (SCICI)

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Évora - 2011



Trauma...it happens all the time

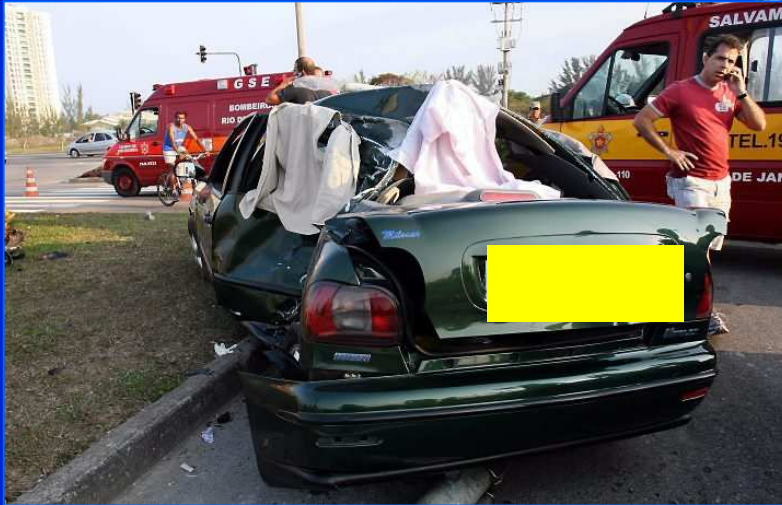


An Introduction to the Physics of Trauma

Kinetic Energy

Newton's First Law of Motion

Law of Conservation of Energy





Trauma

- 100,000 to 150,000 deaths/year
- 3,750,000 years of life lost - More than any other disease

Why does trauma account for more years of life lost than any other disease?

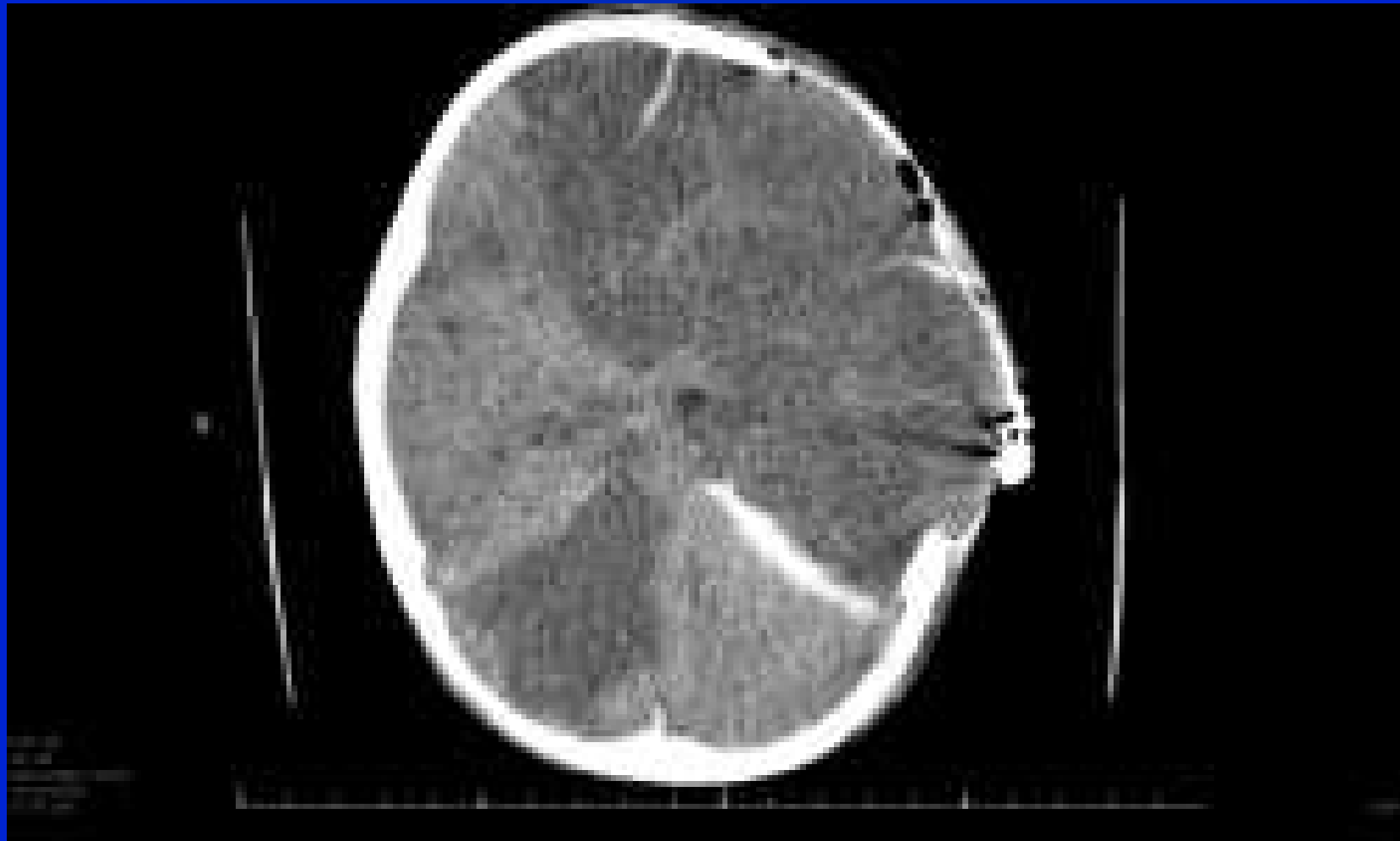


Trauma



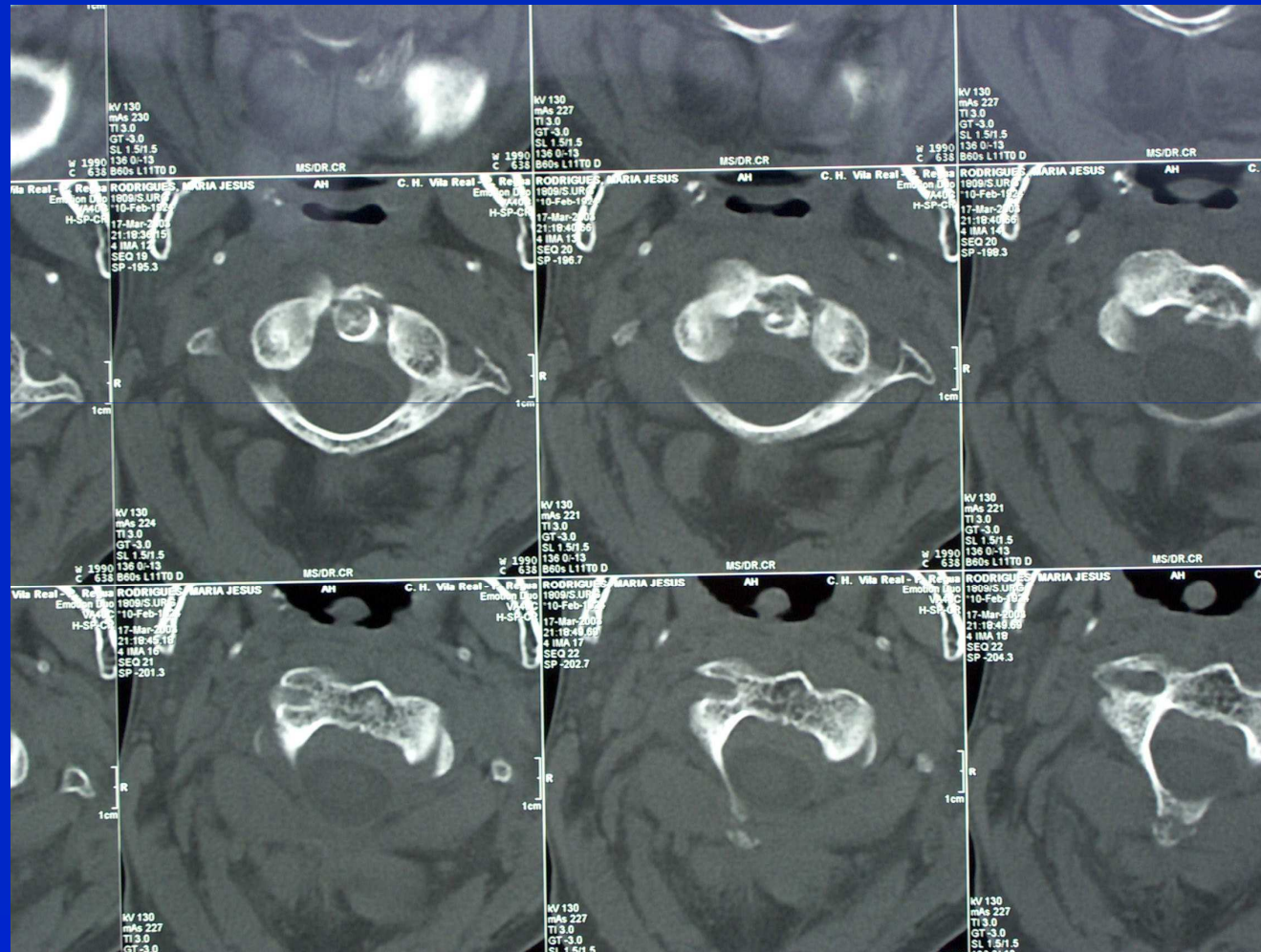


Trauma





Trauma



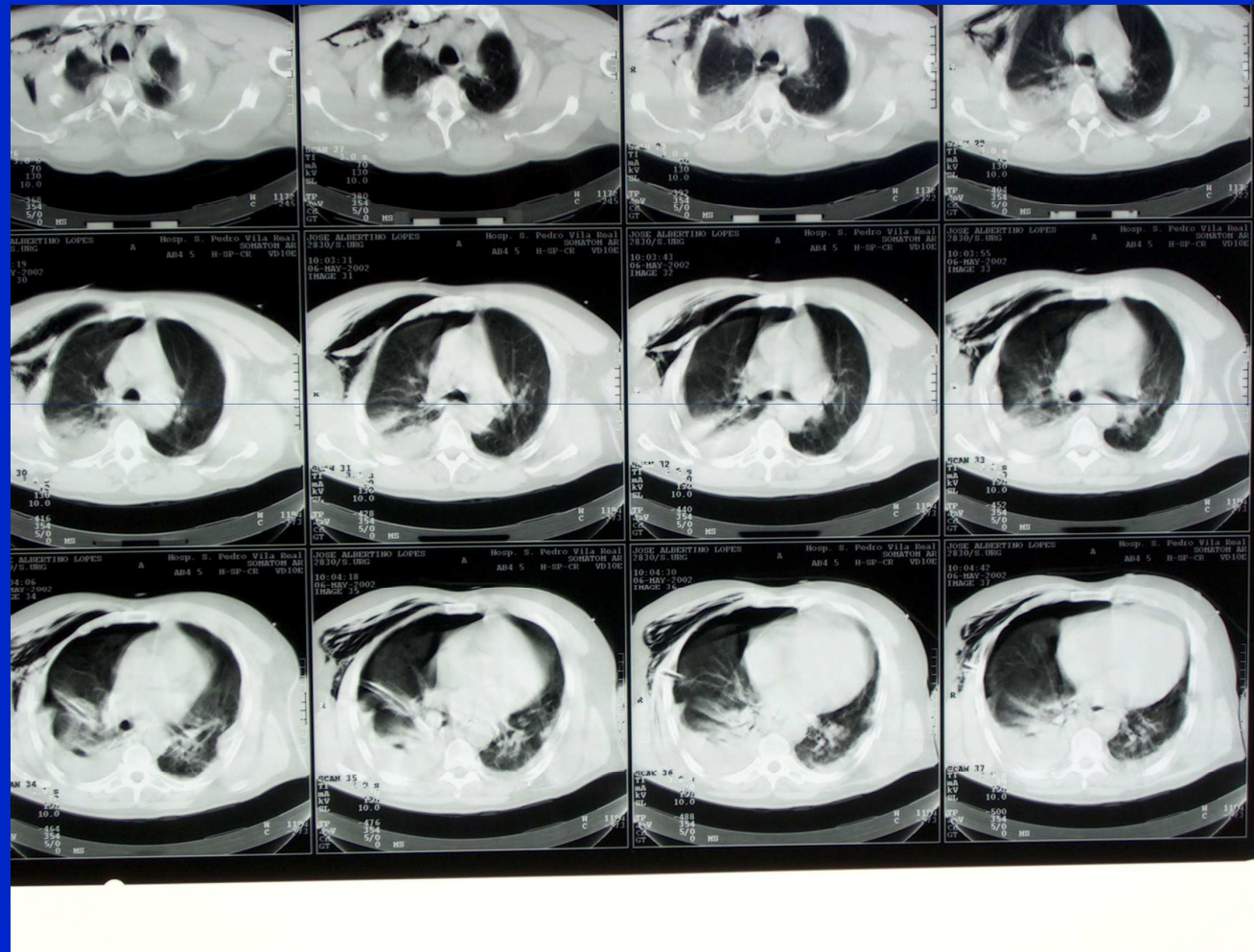


Trauma



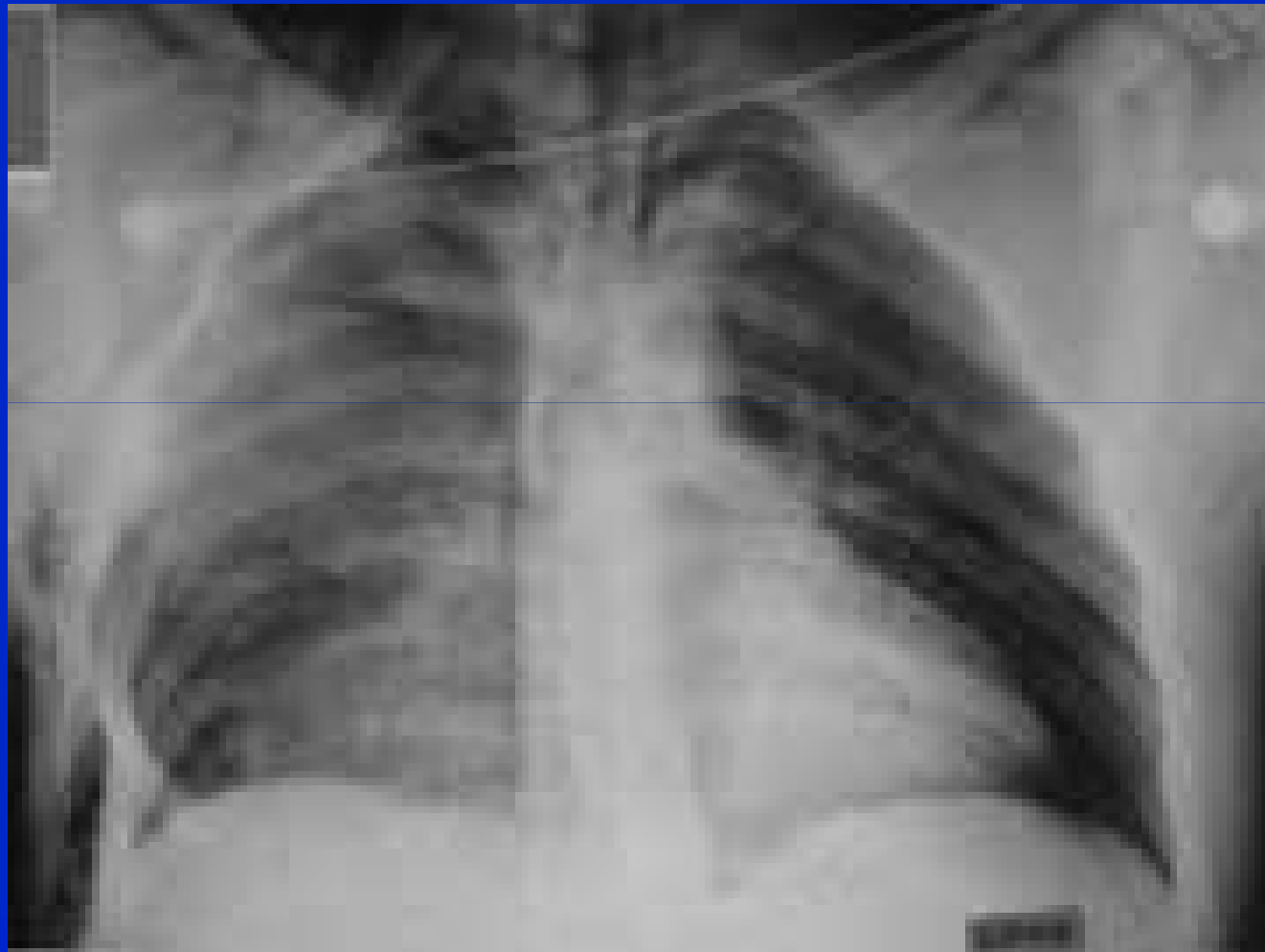


Trauma





Trauma





Trauma





Trauma





Injuries of chest

- Simple/Closed Pneumothorax
- Open Pneumothorax
- Tension Pneumothorax
- Flail Chest
- Cardiac Tamponade
- Traumatic Aortic Rupture
- Traumatic Asphyxia
- Diaphragmatic Rupture



CHEST WALL INJURIES

- Enfisema subcutâneo
- Air leak migration

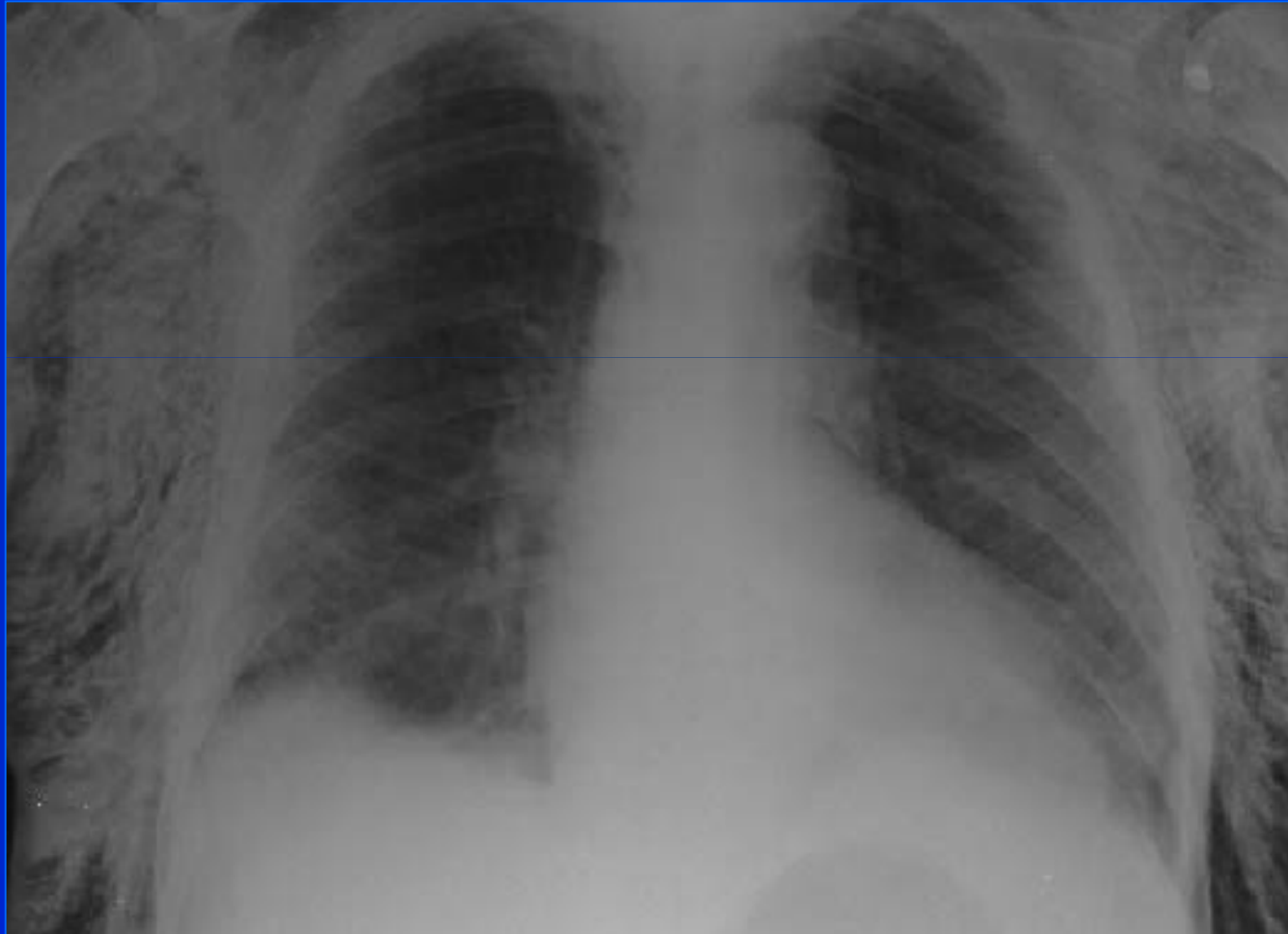


NOT THREATENING LIFE





ENFISEMA SUBCUTÂNEO





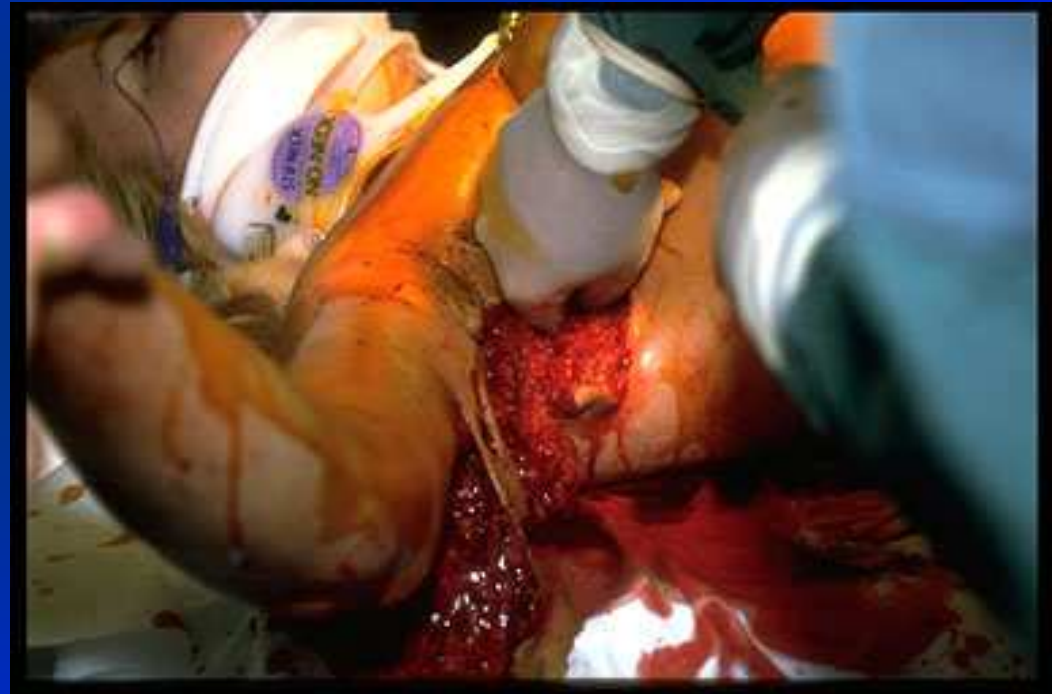
PNEUMOMEDIASTINUM





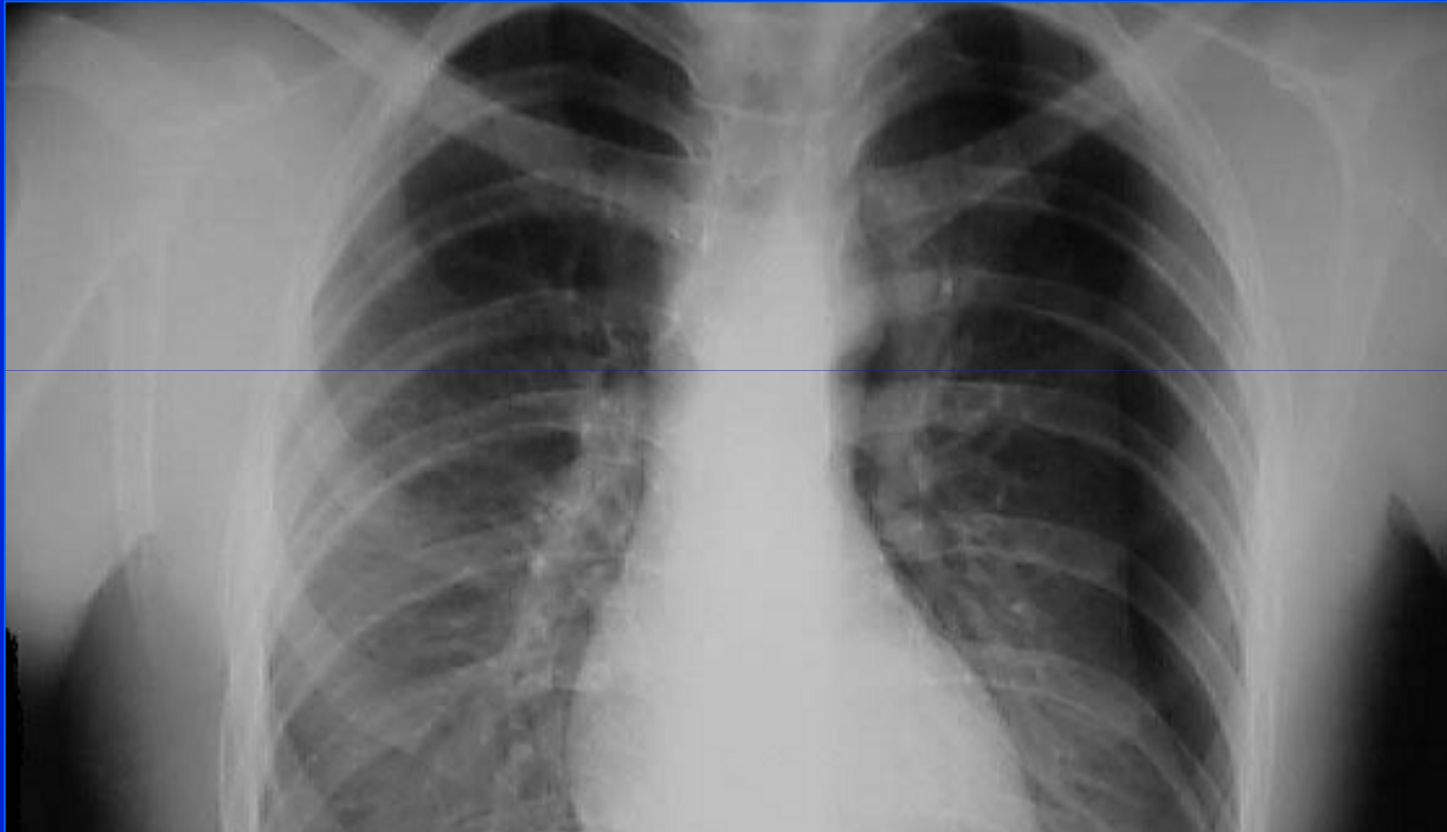
Open Pneumothorax

- Opening in chest cavity that allows air to enter pleural cavity
- Causes the lung to collapse due to increased pressure in pleural cavity
- Can be life threatening and can deteriorate rapidly



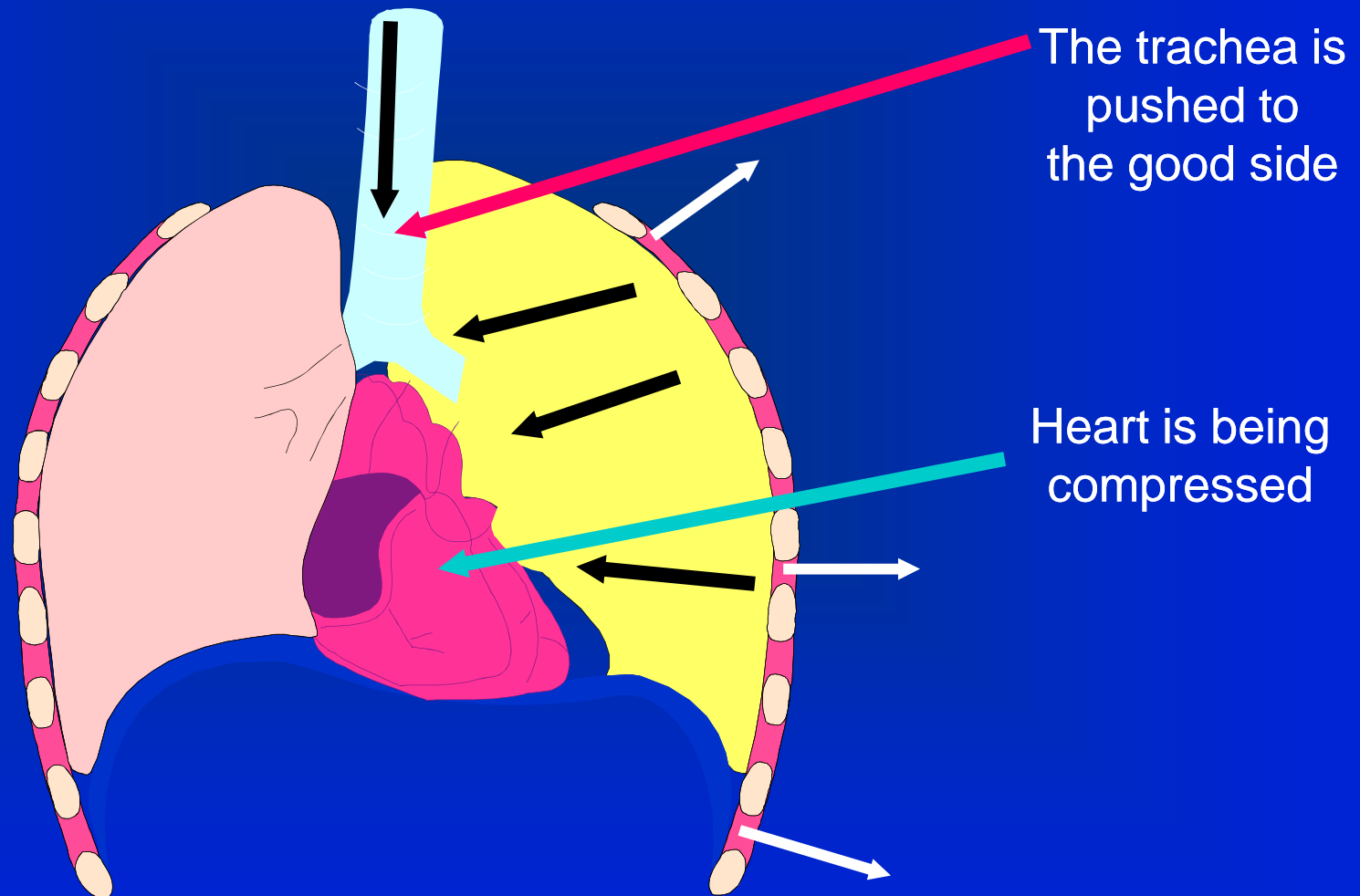


PNEUMOTÓRAX



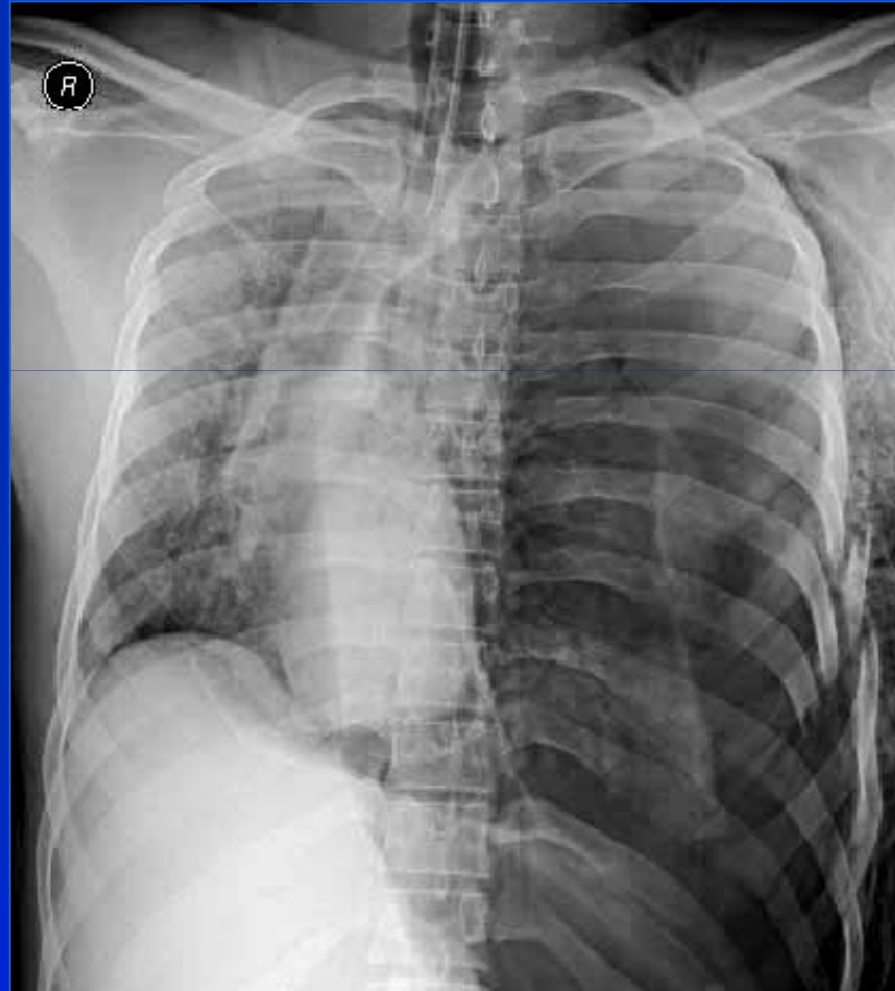


Tension Pneumothorax





PNEUMOTÓRAX HIPERTENSIVO





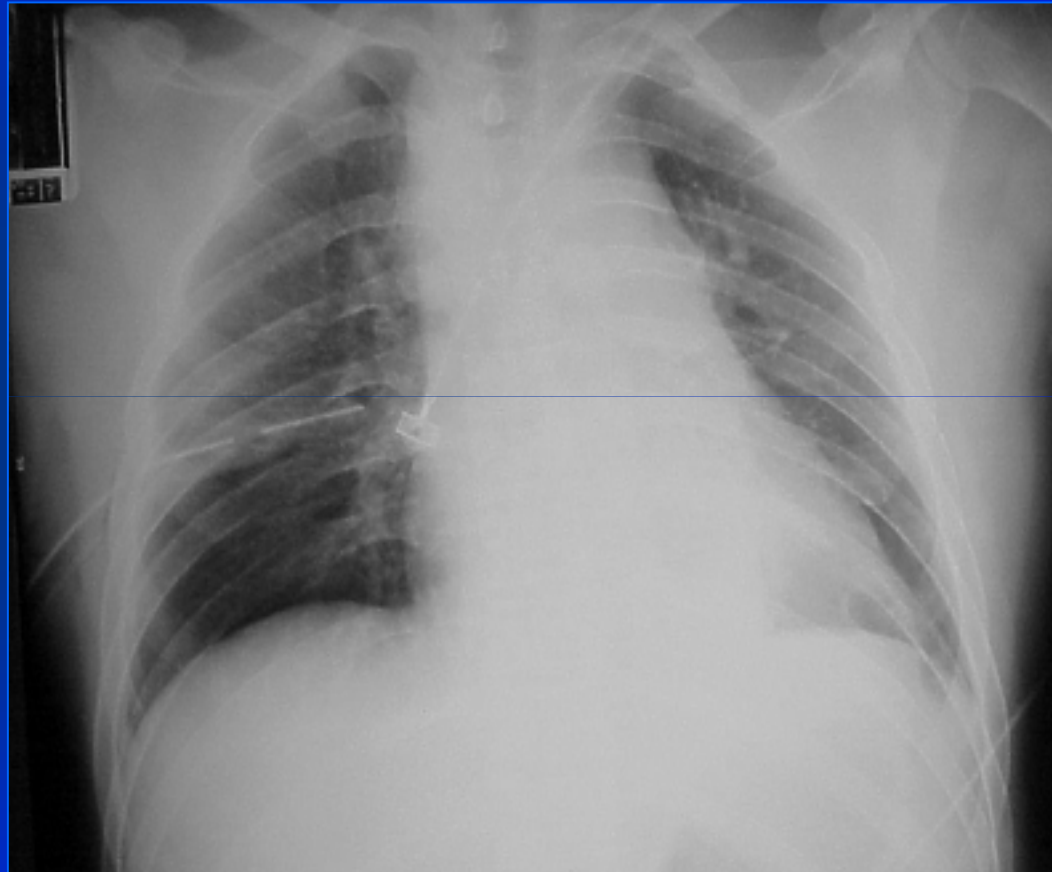
TAMPONAMENTO CARDÍACO

Collection of 60 – 100 ml
of blood

Pericardial cavity

Becks triad

- Distended neck veins
- Hypotension
- Diminished heart tonus





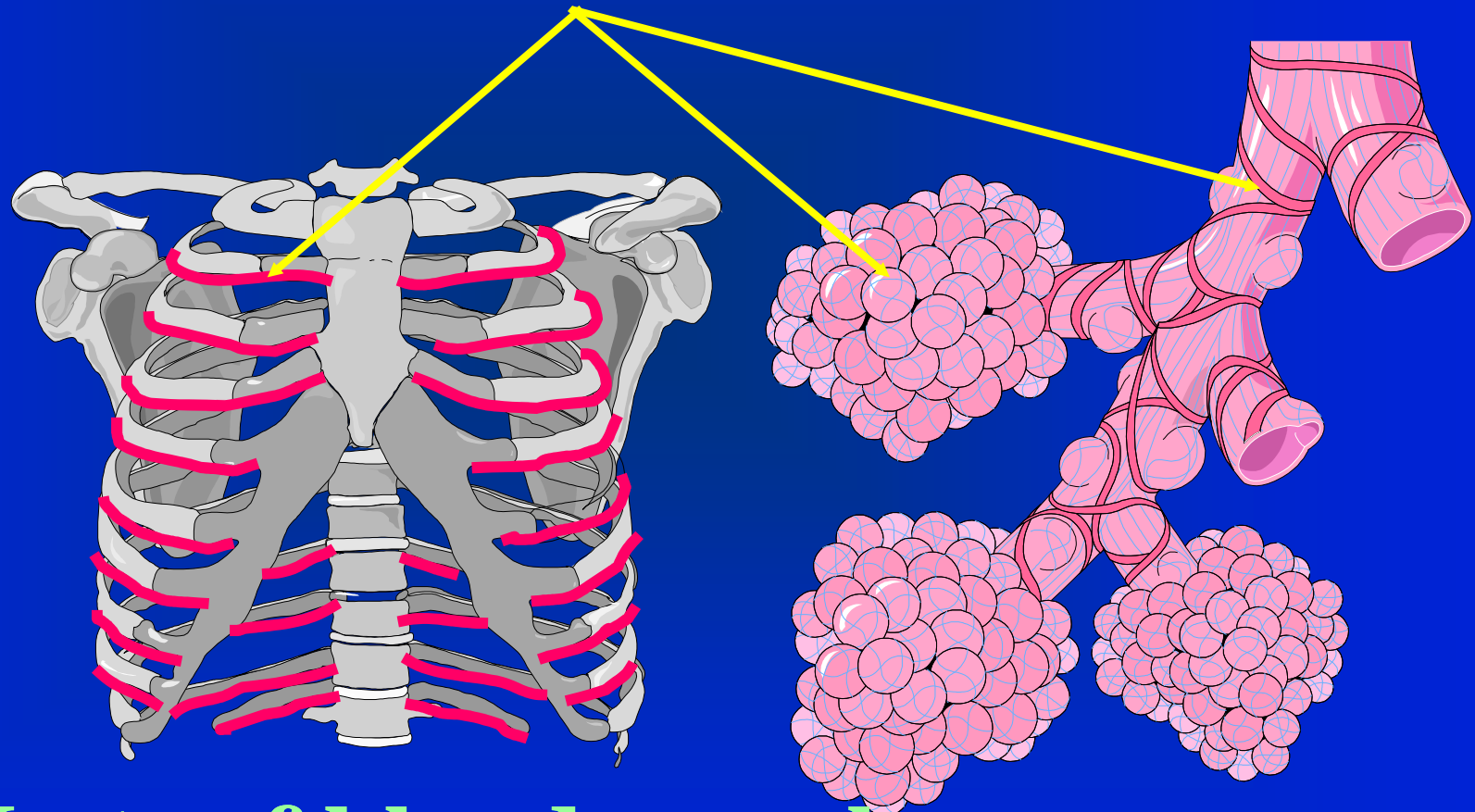
HEMOTÓRAX





Hemothorax

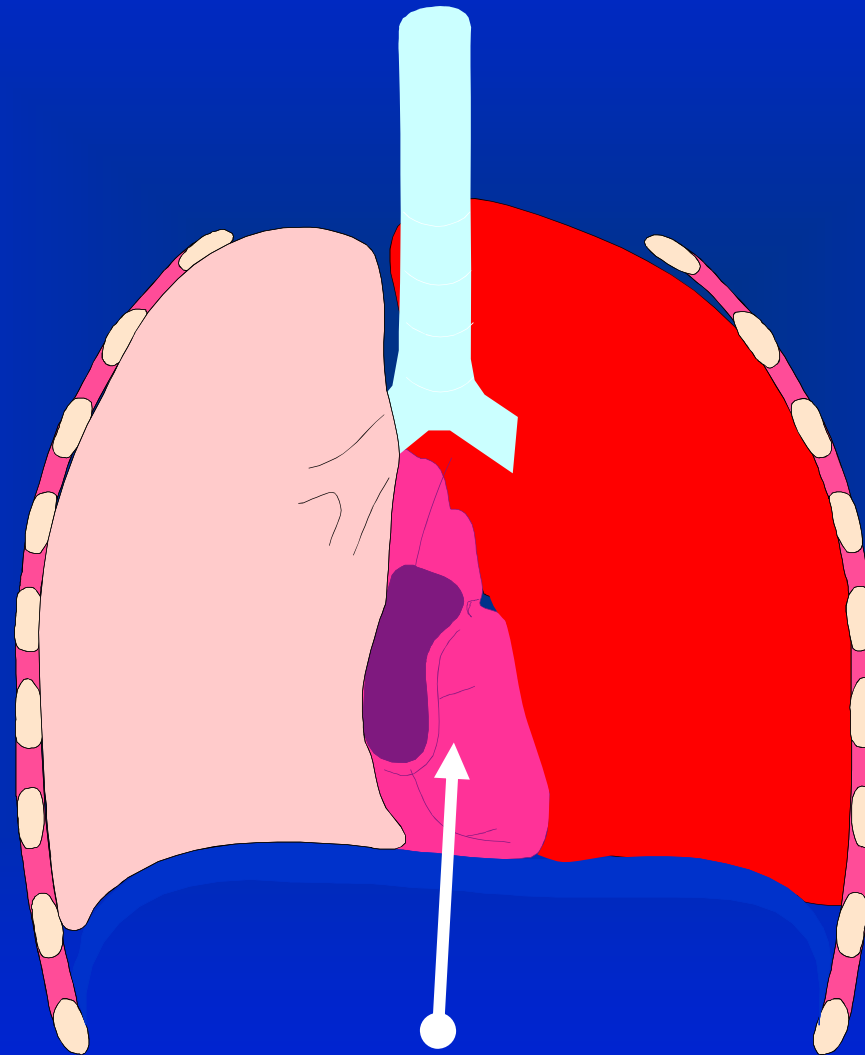
Where does the blood come from.



Lots of blood vessels



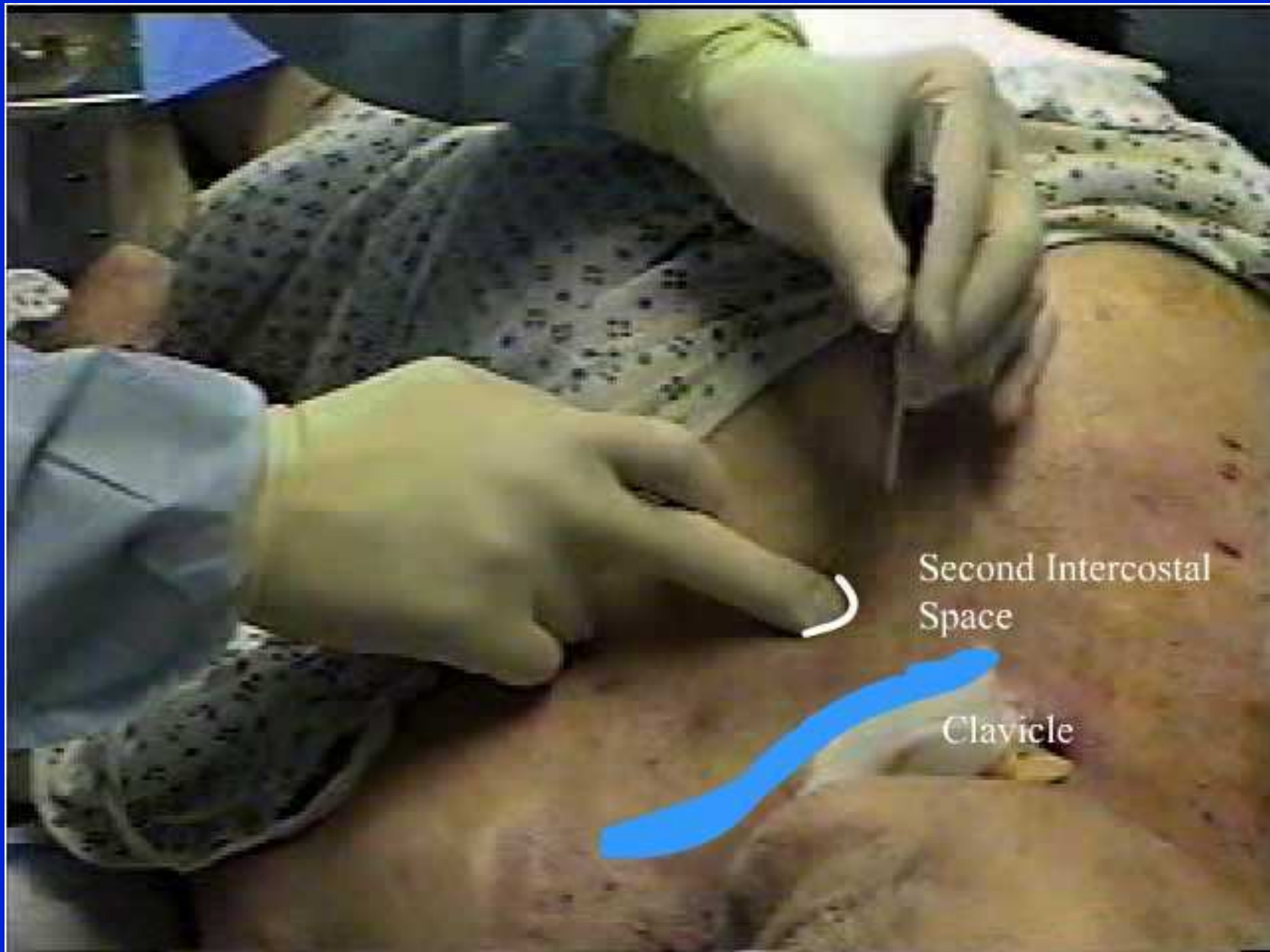
Hemothorax



May put pressure on the heart



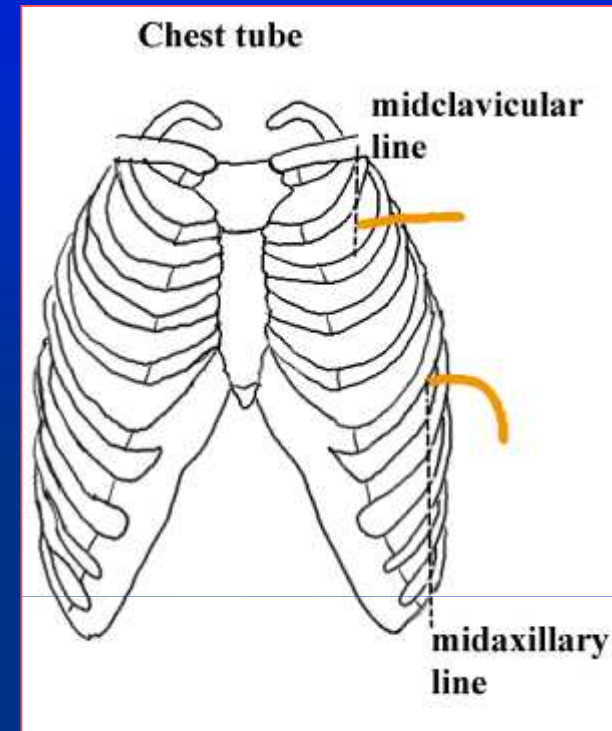
Needle Decompression





Physiologic lung impairment

- 20/30% pulmão colapsado
- Linha média clavicular
- Linha médio-axilar
- 4º / 5º espaços costais





VOLLET COSTAL

- 3 ou mais costelas adjacentes
- Movimento paradoxal
- 5% de mortalidade
- Ventilação Mecânica





A little of history...





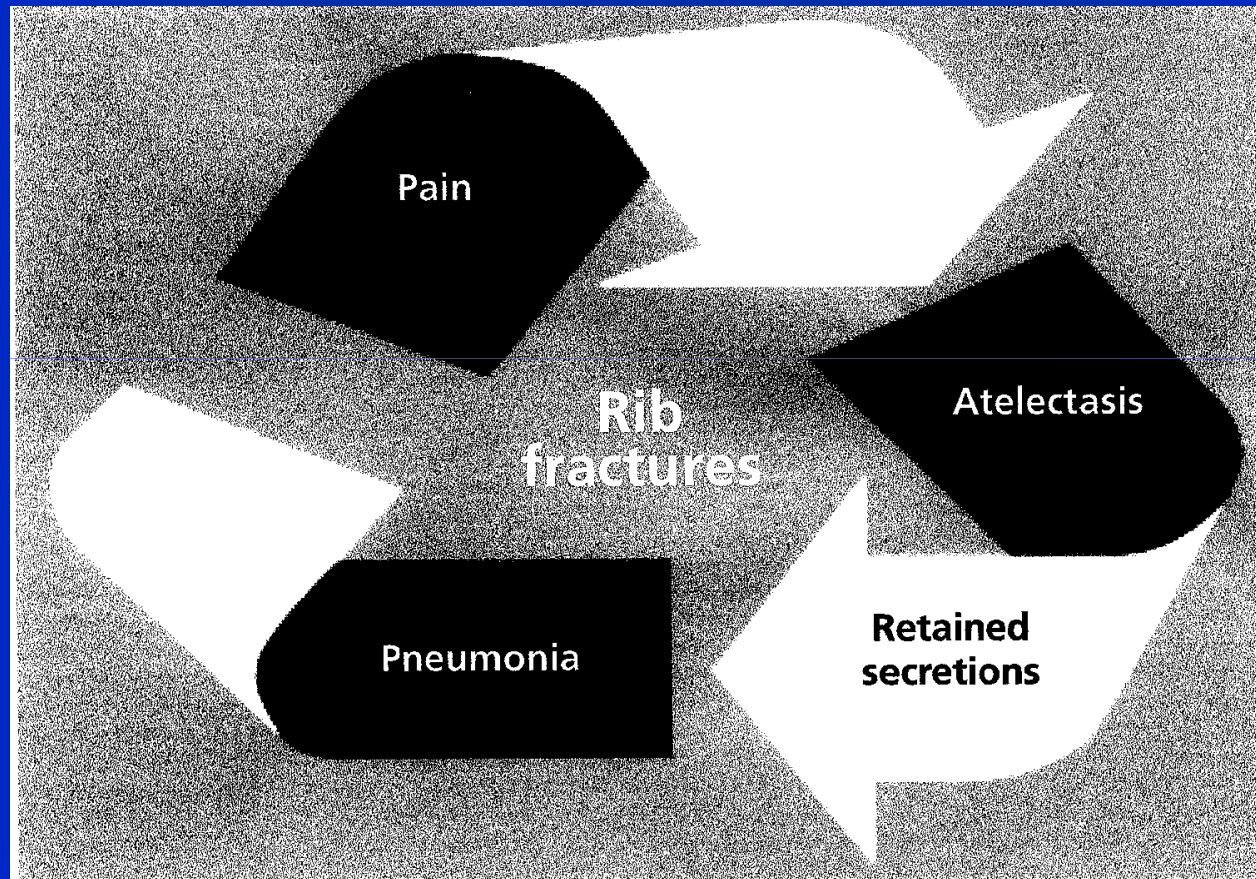
CONTUSÃO PULMONAR

VOLLET COSTAL





Trauma torácico





ARDS: factores risco no trauma

Factor de risco	Risco de ARDS, %
Sepsis	41 - 48
Contusão pulmonar	12 - 37
Fracturas múltiplas de ossos longos Lesão de fractura pélvica instável	11 - 33
Politransfusão	36 - 47

Grant E. O'Keefe, MD et al, Current Opin Crit Care 1996; 2:475-81

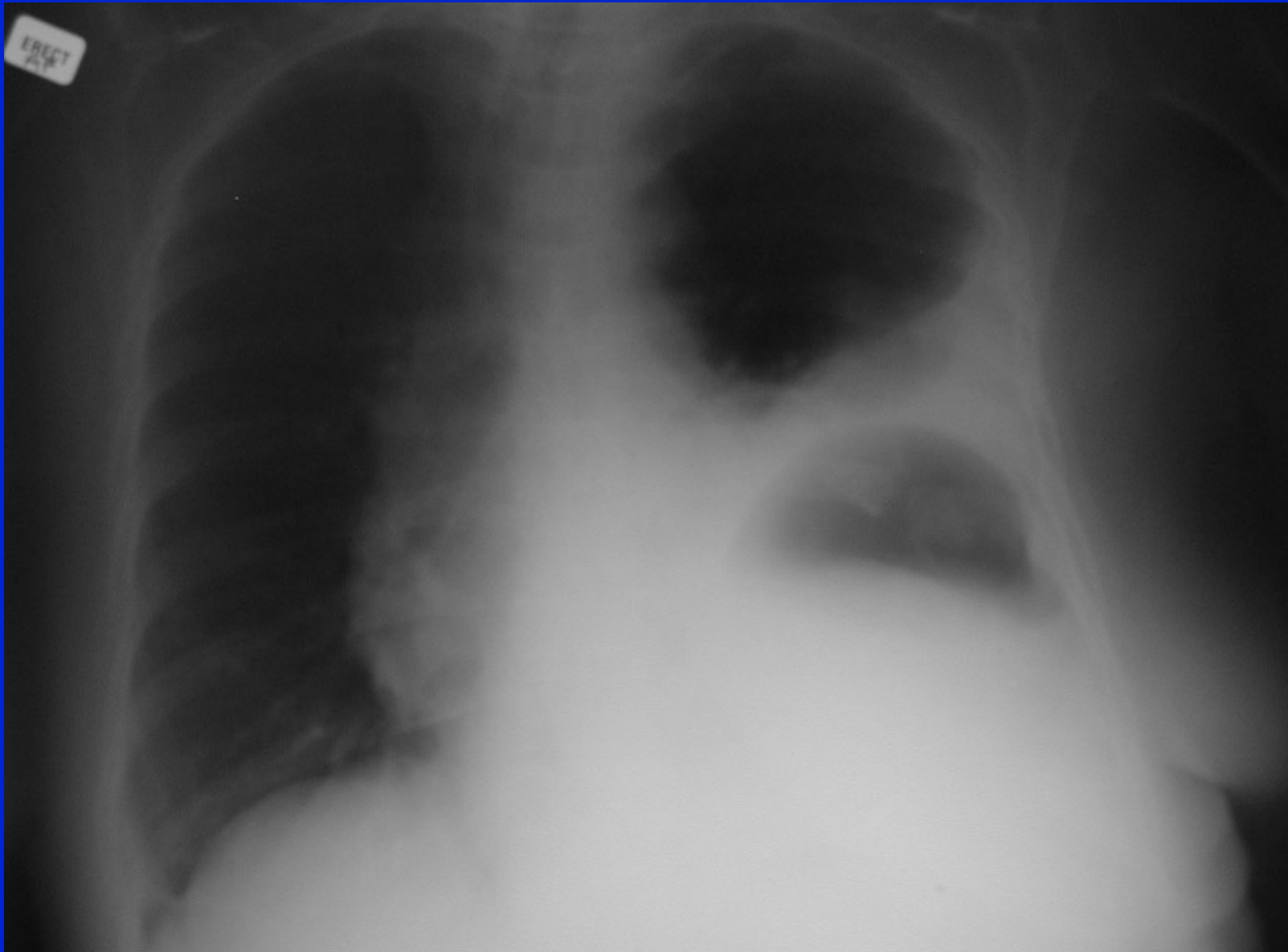


CONTUSÃO PULMONAR

- Edema intersticial
- Hemorragia
- Diminuição compliance pulmonar
- Inflamação vias aéreas
- Atelectasia
- ARDS



Diaphragm Rupture





Fístula broncopleurar

- É condição essencial a existência de drenagem pleural eficaz e permanente, apesar de o débito de ar que os drenos conseguem mobilizar ser muito variável
- Usar o menor V_t eficaz na oxigenação
- Minimizar P_{pico} e $P_{plateau}$
- Considerar hipercapnia permissiva
- Minimizar PEEP
- Se o débito da fístula compromete a possibilidade de insuflar pulmão e determinar graves alterações da V/Q considerar ventilação pulmonar independente do pulmão sã ou ventilação de alta frequência

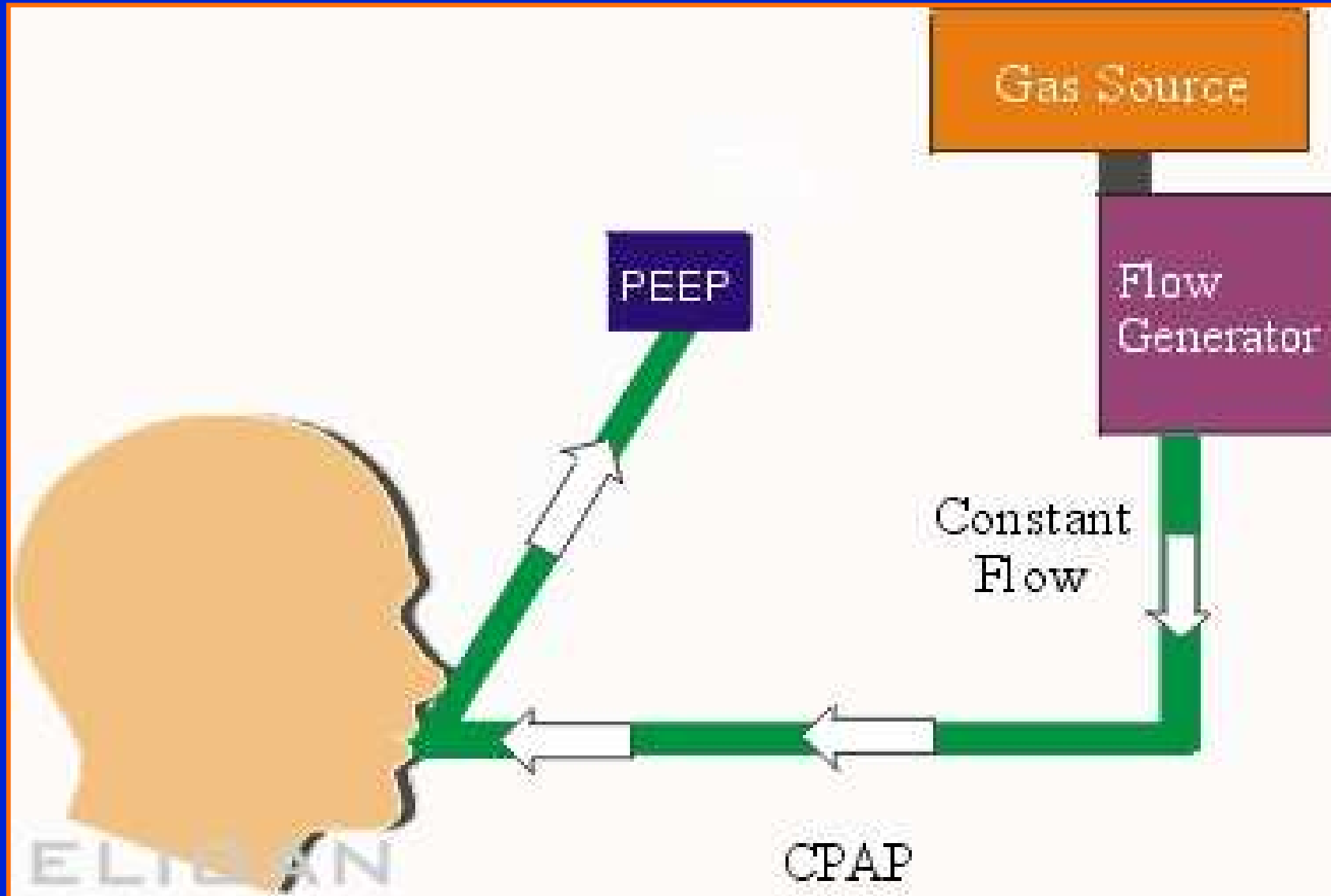


Ventilação pulmonar independente





Ventilador



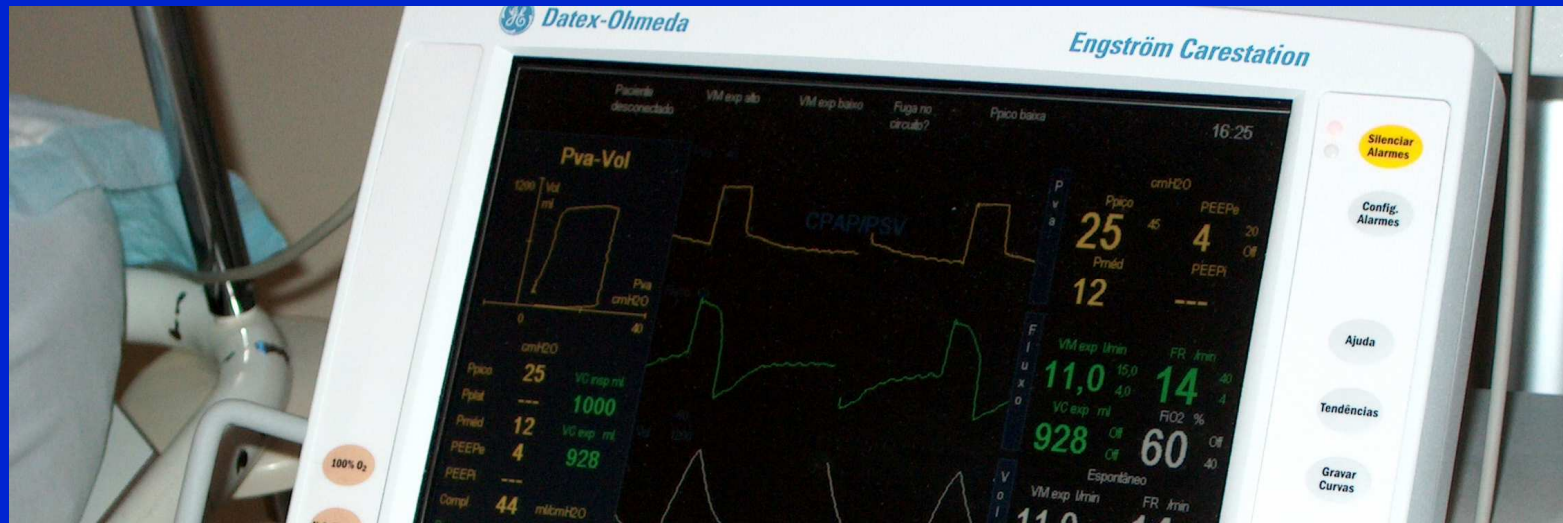


VNI - equipamento





Monitorização de curvas de V/P



ERROR: ioerror
OFFENDING COMMAND: image
STACK: